EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	11	(Fixed adj point adj iteration) and histogram	US-PGPUB; USPAT	OR	ON	2007/10/25 09:43
L2	11	L1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 09:46
L3	29	(Fixed adj point adj iteration) and image	US-PGPUB; USPAT	OR	ON	2007/10/25 09:46
L4	29	L3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 09:51
L5	1995	(382/164,173).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/10/25 09:51
L6	1171	(382/171,172,168).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/10/25 09:51
L7	2685	L5 or L6	US-PGPUB; USPAT	OR	ON	2007/10/25 09:51
L8	1	L7 and ((Fixed adj point adj iteration) or FPI) and segmen$7	US-PGPUB; USPAT	OR	ON	2007/10/25 09:51
L9	1	L8	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 09:52
L10	19	fuzzy adj entropy	US-PGPUB; USPAT	OR	ON	2007/10/25 09:52

EAST Search History

L11	19	L10	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 09:56
L12	12	(fixed adj point adj iteration) and threshold and image and @ay<"2003"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 09:56
L13	12	L12	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 09:57
L14	14	entropy near threshold same histogram	US-PGPUB; USPAT	OR	ON	2007/10/25 09:57
L15	14	L14	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 09:59
L16	2	(compare near entropy) and threshold and (loop or repeat or iter$6) and @ay<"2003" and histogram and ((gray or grey) near level)	US-PGPUB; USPAT	OR	ON	2007/10/25 09:59
L17	2	L16	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 10:00
L18	3	entropy near iteration	US-PGPUB; USPAT	OR	ON	2007/10/25 10:00

EAST Search History

L19	3	L18	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 10:01
L20	31	compare near entropy	US-PGPUB; USPAT	OR	ON	2007/10/25 10:01
L21	31	L20	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 10:05
L22	8	entropy with iteration with minimum	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 10:05
L23	8	L22	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 10:06
L24	15	entropy with iteration and (binary near search)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 10:06
L25	15	L24	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 10:10
L26	13	average with max$5 with min$5 with entropy	US-PGPUB; USPAT	OR	ON	2007/10/25 10:10

EAST Search History

L27	13	L26	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/10/25 10:18

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L28	0	((5 or 6) and histogram and image and entropy and (FPI or (fixed near2 point near2 iteration) or iteration) and ((optimal or best) near threshold)).clm.	US-PGPUB	OR	ON	2007/10/25 10:23
L29	0	((5 or 6) and histogram and image and entropy and (FPI or (fixed near2 point near2 iteration) or iteration)).clm.	US-PGPUB	OR	ON	2007/10/25 10:24
L30	2	(histogram and image and entropy and (FPI or (fixed near2 point near2 iteration) or iteration)).clm.	US-PGPUB	OR	ON	2007/10/25 10:25
L31	20	(histogram and image and threshold and (FPI or (fixed near2 point near2 iteration) or iteration)).clm.	US-PGPUB	OR	ON	2007/10/25 10:25

~~Patent Literature Abstracts
File 344:Chinese Patents Abs Jan 1985-2006/Jan
(c) 2006 European Patent Office
File 347:JAPIO Dec 1976-2006/Dec(Updated 070403)
(c) 2007 JPO & JAPIO
File 350:Derwent WPIX 1963-2007/UD=200738
(c) 2007 The Thomson Corporation

Set	Items	Description
S1	36614	(SEGMENT? OR PARTITION? OR SEPARAT? OR CLASSIFICATION OR C-LASSIFY?)(3N)(IMAGE? ? OR PICTURE? ? OR PHOTO? ? OR PHOTOGRAPH? ?)
S2	8649	HISTOGRAM
S3	22	FUZZY()ENTROP? OR (MINIMI?ING OR MEASUR?)(3N)FUZZINESS
S4	145	(MINIMUM OR LOWEST OR LEAST)(3N)ENTROP?
S5	217353	THRESHOLD
S6	110	FPI OR (FIXED()POINT OR FIXEDPOINT)()ITERATION
S7	438	ITERATION(2N)(TECHNIQUE? OR METHOD? OR ANALY?)
S8	11294	(GRAY OR GREY)()(LEVEL? OR SCALE?) OR GRAYSCALE?
S9	3887	AU=(SHIN, Y? OR SHIN Y?)
S10	6	S9 AND S1
S11	1	S10 AND (S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8)
S12	139	S1 AND S2 AND S5
S13	0	S12 AND S3 AND S6 AND S8
S14	1	S12 AND (S3 OR S4) AND (S6 OR S7)
S15	1	S14 AND S8
S16	0	S15 NOT S11
S17	3132	ENTROPY
S18	8	S17 AND (S6 OR S7)
S19	1	S18 AND S8
S20	0	S19 NOT S11
S21	8	S1 AND (S6 OR S7)
S22	3	S21 AND (S2 OR S8)
S23	2	S22 NOT S11

11/3,K/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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0014600948 - Drawing available
WPI ACC NO: 2004-782914/200477
XRPX Acc No: N2004-616930
Image segmentation **optimum** threshold **value finding method for use in image recognition, involves gaining** minimum entropy **value related to** gray level **as** threshold **value by using** fixed point iteration **based on entropy values**
Patent Assignee: BOMTAI CO LTD (BOMT-N); PANTECH CO LTD (PANT-N); SHIN Y (SHIN-I)
Inventor: **SHIN Y ; SHIN Y S**
Patent Family0 (5 patents, 36 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	
US 20040208367	A1	20041021	US 2004817551	A	20040402	200477	B
EP 1471456	A2	20041027	EP 2004252083	A	20040407	200477	E
CN 1540576	A	20041027	CN 200410031080	A	20040420	200512	E
KR 2004091271	A	20041028	KR 200325048	A	20030421	200516	E
KR 553431	B1	20060220	KR 200325048	A	20030421	200703	E

Priority Applications (no., kind, date): KR 200325048 A 20030421
Patent Details
Number Kind Lan Pg Dwg Filing Notes
US 20040208367 A1 EN 11 6
EP 1471456 A2 EN
Regional Designated States,Original: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IT LI LT LU LV MC MK NL PL PT RO SE SI SK TR
KR 553431 B1 KO Previously issued patent KR 2004091271

Image segmentation **optimum** threshold **value finding method for use in image recognition, involves gaining** minimum entropy **value related** to gray level **as** threshold **value by using** fixed point iteration **based on entropy values**

Original Titles:
...Method and apparatus for finding optimal **threshold** for **image segmentation**
...

...Procede et dispositif d'etablissement d'un seuil optimal pour la **segmentation** d' **image**
...
...Method for finding optimal **threshold** for **image segmentation**
Inventor: **SHIN Y** ...

... **SHIN Y S**

Alerting Abstract ...NOVELTY - The method involves computing entropy values corresponding to gray values in a **histogram** . Entropy values of **gray levels** related to possible optimal thresholds are obtained. A **threshold** value is obtained by comparing entropy values and selecting a **minimum entropy** value. The **minimum entropy** value related to the **gray level** is gained as the **threshold** value by using a **fixed point iteration** based on the computed entropy values.USE - Used for finding an optimum **threshold** value for an **image segmentation** in an **image** recognition...

...ADVANTAGE - The method analyzes an entropy characteristic of image based on **fixed point iteration** , thereby effectively and quickly finding an optimal **threshold** for **image segmentation** of an **image** .
...

...DESCRIPTION OF DRAWINGS - The drawing shows a flowchart for explaining the step of gaining a **gray level** corresponding to the **minimum entropy** by using **fixed point iteration** .

Title Terms.../Index Terms/Additional Words: **THRESHOLD** ;

Original Publication Data by Authority

Inventor name & address:
Shin, Yong-Shik ...

... **SHIN Y S** ...

... **SHIN Y S** ...

... **Shin, Yong-Shik**
Original Abstracts:
A method and apparatus for finding the optimal **threshold** for **image segmentation** in **image** recognition is disclosed. The method includes the steps of: a) gaining **histogram** distribution of an image; b) computing entropy values corresponding to **gray levels** in the **histogram** ; and c) gaining a **minimum entropy** value corresponding to the **gray level** as the **threshold** value by using a **fixed point iteration FPI** based on the computed entropy values...

...A method for finding the optimal **threshold** for **image segmentation** in **image** recognition is disclosed. The method includes the steps of: a) gaining **histogram** distribution of an image; b) computing entropy values corresponding to **gray levels** in the **histogram** ; and c) gaining a **minimum entropy** value corresponding to the **gray level** as the **threshold** value by using a **fixed point iteration FPI** based on the computed entropy values.
Claims:
A method for finding a **threshold** value in **image segmentation** , the method comprising the steps of: a) gaining **histogram** distribution of an image; b) computing entropy values corresponding to **gray levels** in the **histogram** ; and c) gaining a **minimum entropy** value corresponding to the **gray level** as the **threshold** value by using a **fixed point iteration FPI** based on the computed entropy values...

...What is claimed is: 1. A method for finding a **threshold** value in **image segmentation** , the method comprising the steps of: a) gaining **histogram** distribution of an image; b) computing entropy values corresponding to **gray levels** in the **histogram** ; and c) gaining a **minimum entropy** value corresponding to the **gray level** as the **threshold** value by using a **fixed point iteration FPI** based on the computed entropy values.

23/3,K/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

0009591959 - Drawing available
WPI ACC NO: 1999-540267/199945
XRPX Acc No: N1999-400422
Method for identifying lung fields within chest region based on posteroanterior chest radiographic images
Patent Assignee: ARCH DEV CORP (ARCH-N)
Inventor: ARMATO S G; GIGER M L; MACMAHON H
Patent Family (9 patents, 22 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	
WO 1999042031	A1	19990826	WO 1999US3287	A	19990223	199945	B
AU 199927673	A	19990906	AU 199927673	A	19990223	200003	E
EP 1056390	A1	20001206	EP 1999908179	A	19990223	200064	E
			WO 1999US3287	A	19990223		
US 6282307	B1	20010828	US 199828518	A	19980223	200151	E
US 20010021264	A1	20010913	US 199828518	A	19980223	200155	E
			US 2001842860	A	20010427		
JP 2002503861	W	20020205	WO 1999US3287	A	19990223	200212	E

			JP 2000532053	A	19990223		
US 6483934	B2	20021119	US 199828518	A	19980223	200280	E
			US 2001842860	A	20010427		
US 20030053674	A1	20030320	US 199828518	A	19980223	200323	E
			US 2001842860	A	20010427		
			US 2002283044	A	20021030		
US 6724925	B2	20040420	US 199828518	A	19980223	200427	E
			US 2001842860	A	20010427		
			US 2002283044	A	20021030		

Priority Applications (no., kind, date): US 2002283044 A 20021030; US 2001842860 A 20010427; US 199828518 A 19980223

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
WO 1999042031	A1	EN	66	24	
National Designated States,Original: AU CA JP					
Regional Designated States,Original: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE					
AU 199927673	A	EN			Based on OPI patent WO 1999042031
EP 1056390	A1	EN			PCT Application WO 1999US3287
					Based on OPI patent WO 1999042031
Regional Designated States,Original: DE FR GB IT NL					
US 20010021264	A1	EN			Continuation of application US 199828518
JP 2002503861	W	JA	67		PCT Application WO 1999US3287
					Based on OPI patent WO 1999042031
US 6483934	B2	EN			Division of application US 199828518
					Division of patent US 6282307
US 20030053674	A1	EN			Division of application US 199828518
					Continuation of application US 2001842860
					Division of patent US 6282307
					Continuation of patent US 6483934
US 6724925	B2	EN			Division of application US 199828518
					Continuation of application US 2001842860
					Division of patent US 6282307
					Continuation of patent US 6483934

Original Publication Data by Authority

Original Abstracts:

...of the lung fields and costophrenic angle (CP) regions in posteroanterior (PA) chest radiographs, wherein **image segmentation** based on **gray - level** threshold analysis (**S3** , **1003**) is performed by applying an iterative global **gray - level** thresholding method (**S5** , **1005**) to a chest image based on the features of a global **gray - level histogram** (S3, **1003**). **Features of** the regions in a binary image constructed at each **iteration** are identified and **analyzed** to exclude regions external to the lung fields. The initial lung contours that result from this global process are used to facilitate a local **gray - level** thresholding method (**S6** , **1006**). Individual regions-of-interest (ROIs)

are placed along the initial contour.A procedure is implemented to determine the **gray - level** thresholds to **be applied** to the pixels within the individual ROIs. The result is a binary image, from which...

...of the lung fields and costophrenic angle (CP) regions in posteroanterior (PA) chest radiographs, wherein **image segmentation** based on **gray - level** threshold analysis is **performed by** applying an **iterative global gray - level** thresholding method to a chest image based **on the** features of a global **gray - level histogram** . Features of the regions in a **binary image constructed** at each iteration are identified and analyzed to exclude regions external to the lung fields... ...initial lung contours that result from this global process are used to facilitate a local **gray - level** thresholding method. Individual regions-of-interest (ROIs) **are placed** along the initial contour. A procedure is implemented to determine the **gray - level** thresholds to be applied to the pixels **within the** individual ROIs. The result is a binary image, from which final contours are constructed. Smoothing...

...is employed on a column-by-column basis to identify initial diaphragm points, and maximum **gray - level** information is used on a row-by- **row basis** to identify initial costal points. Analysis of initial diaphragm and costal points allows for appropriate...

...automated segmentation of the lung fields and costophrenic angle (CP) regions in posteroanterior (PA) chest **radiographs** , wherein **image segmentation** based on **gray - level** threshold analysis is performed by applying an iterative **global gray - level** thresholding **method to** a chest image based on the features of a **global gray - level histogram** . Features of the regions in a binary image constructed at each **iteration are identified** and analyzed to exclude regions external to the lung fields. The initial lung contours that result from this global process are used to facilitate a local **gray - level** thresholding method. Individual regions-of-interest (ROIs) are placed along the initial **contour** . **A** procedure is implemented to determine the **gray - level** thresholds to be applied to the pixels within the individual ROIs. The **result is** a binary image, from which final contours are constructed. Smoothing processes are applied, including a...

...is employed on a column-by-column basis to identify initial diaphragm points, and maximum **gray - level** information is used on a row-by-row basis to identify initial **costal points** . Analysis of initial diaphragm and costal points allows for appropriate adjustment of CP angle ROI...

...segmentation of the lung fields and costophrenic angle (CP) regions in posteroanterior (PA) chest radiographs **wherein image segmentation** based on **gray - level** threshold analysis is performed by applying an iterative global **gray - level** thresholding method **to a** chest image based on the features of a global **gray - level histogram** . Features of the regions in a binary image constructed at each iteration **are identified and** analyzed to exclude regions external to the lung fields. The initial lung contours that result from this global process are used to facilitate a local **gray - level** thresholding method. Individual regions-of-interest (ROIs) are placed along the initial contour. **A procedure** is implemented to determine the **gray - level** thresholds to be applied to the pixels within the individual ROIs. The result **is a** binary image, from which final contours are constructed. Smoothing processes are applied, including a unique...

...is employed on a column-by-column basis to identify initial diaphragm points, and maximum **gray - level** information is used on a row-by-row basis to identify initial costal **points** . **Analysis** of initial diaphragm and costal points allows for appropriate adjustment of CP angle ROI positioning...

...of the lung fields and costophrenic angle (CP) regions in posteroanterior (PA) chest radiographs, wherein **image segmentation** based **on gray - level** threshold analysis is performed by applying an iterative global **gray - level** thresholding method **to a** chest **image based on** the features of a global **gray - level histogram** . Features **of the** regions in a binary image constructed at each iteration are identified and analyzed **to exclude regions** external to the lung fields. The initial lung contours that result from this global process are used to facilitate a local **gray - level** thresholding method. Individual regions-of-interest (ROIs) are placed along the initial contour. A procedure is implemented **to determine** the **gray - level** thresholds to be applied to the pixels within the individual ROIs. The result is a binary image, **from which** final contours are constructed. Smoothing processes are applied, including a unique adaptation of a rolling...

...is employed on a column-by-column basis to identify initial diaphragm points, and maximum **gray - level** information is used on a row-by-row basis to identify initial costal points. Analysis of initial **diaphragm and** costal points allows for appropriate adjustment of CP angle ROI positioning. Polynomial curve-fitting is...

...of the lung fields and costophrenic angle (CP) regions in posteroanterior (PA) chest radiographs, wherein **image segmentation** based on **gray - level** threshold analysis is performed by applying an iterative global **gray - level** thresholding method to a chest **image** based **on the** features of **a global gray - level histogram** . Features of the regions in a **binary image** constructed **at** each **iteration** are identified and analyzed to exclude regions external to **the lung fields** . The initial lung contours that result from this global process are used to facilitate a local **gray - level** thresholding method. Individual regions-of-interest (ROIs) are placed along the initial contour. A procedure is implemented to determine the **gray - level thresholds to** be applied to the pixels within the individual ROIs. The result is a binary image, from which final contours are **constructed** . **Smoothing** processes are applied, including a unique adaptation of a rolling ball method. CP angles are...

...is employed on a column-by-column basis to identify initial diaphragm points, and maximum **gray - level** information is used on a row-by-row basis to identify initial costal points. Analysis of initial diaphragm and costal points allows **for appropriate** adjustment of CP angle ROI positioning. Polynomial curve-fitting is used to combine the diaphragm...

...of the lung fields and costophrenic angle (CP) regions in posteroanterior (PA) chest radiographs, wherein **image segmentation** based on **gray - level** threshold analysis (S3, 1003) is performed by applying an iterative global **gray - level** thresholding method (S5, 1005) to a chest **image** based on **the features** of a **global gray - level histogram** (S3, 1003). Features of the regions in a binary **image constructed** at **each iteration** are identified and analyzed to exclude

regions external to the lung fields. **The initial lung** contours that result from this global process are used to facilitate a local **gray - level** thresholding **method** (S6, 1006). Individual regions-of-interest (ROIs) are placed along the initial contour.A procedure is implemented to determine the **gray - level** thresholds to be **applied to** the pixels within the individual ROIs. The result is a binary image, from which final contours are constructed.

...

...champs pulmonaires et des angles costo-phreniques, dans des radiographies postero-anterieures des poumons. Cette **segmentation** d' **image** s'effectue d'apres une analyse de seuil des niveaux de gris (S3, 1003), par...

...d'une technique de seuillage global et iteratif (S5, 1005) des niveaux de gris (5, **1005**), sur **une image** des poumons, d'apres les caracteristiques d'un histogramme global (S3, 1003) des niveaux de
Claims:
...of the chest region; andconstructing, based on said lung fields identified in said processed **image** , first initial lung **segmentation** contours for said posteroanterior chest image.

...

...of the chest region; andconstructing, based on said lung fields identified in said processed **image** , **first** initial lung **segmentation** contours for said posteroanterior chest image...

.....lung segmentation contours for said posteroanterior chest image;performing, based on said first initial lung **segmentation contours** , local threshold analysis to construct second **initial** lung **segmentation** contours for said posteroanterior chest image; andapplying a rolling ball filter to said second initial lung segmentation contours to smooth the shape of said second initial lung **segmentation** contours.

23/3,K/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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0009533946 - Drawing available
WPI ACC NO: 1999-478729/199940
XRPX Acc No: N1999-356430
Method of automatically segmenting lung radiographs
Patent Assignee: ARCH DEV CORP (ARCH-N)
Inventor: ARMATO S G; GIGER M L; MACMAHON H
Patent Family (5 patents, 22 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	
WO 1999005640	A1	19990204	WO 1998US15351	A	19980724	199940	B
AU 199885860	A	19990216	AU 199885860	A	19980724	199940	E
EP 998719	A1	20000510	EP 1998937064	A	19980724	200027	E
			WO 1998US15351	A	19980724		
JP 2001511374	W	20010814	WO 1998US15351	A	19980724	200154	E
			JP 2000504545	A	19980724		
US 6335980	B1	20020101	US 1997900189	A	19970725	200207	E
			US 1999471088	A	19991223		

Priority Applications (no., kind, date): US 1999471088 A 19991223; US 1997900189 A 19970725

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
WO 1999005640	A1	EN	0	11	
National Designated States,Original: AU CA JP					
Regional Designated States,Original: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE					
AU 199885860	A	EN			Based on OPI patent WO 1999005640
EP 998719	A1	EN			PCT Application WO 1998US15351
					Based on OPI patent WO 1999005640
Regional Designated States,Original: DE FR GB IT NL					
JP 2001511374	W	JA	55		PCT Application WO 1998US15351
					Based on OPI patent WO 1999005640
US 6335980	B1	EN			Continuation of application US 1997900189

Alerting Abstract ...and posterior margins are determined (1003,1004). A Sobel filter (1005) is applied and global **gray - level** thresholding is performed (1006). The resulting contour is smoothed (1007), e.g. using running mean and rolling ball techniques. Adaptive local **gray - level** thresholding (1009) is followed by further smoothing (1010) and third order, least-squares polynomials are...
...1006 Global **gray - level** thresholding...

...1009 Adaptive local **gray - level** thresholding...

Original Publication Data by Authority

Original Abstracts:
...for the automated segmentation of the lung regions in lateral chest radiographs (10) based on **gray - level** threshold analysis. **Approximate outer** bounds on the extent of the lung fields in the image are identified to restrict the region further analyzed (16). An iterative global **gray - level** thresholding method (**20**) **is** applied based on the features of a global **gray - level histogram** . Features **of the regions** in a binary image constructed at each iteration are identified and subjected to a modified...

...lung field. Individual regions-of-interest (ROIs) are placed along the initial contour. The single **gray - level** threshold to **be applied** to the pixels within the individual ROIs is determined (1009). A final contour is constructed...

...This is achieved according to the invention by providing an improved computerized, automated method for **image segmentation** based on **gray - level threshold** analysis. A **unique method** for identifying an approximate outer bounds on the extent of the lung fields in the image is performed to restrict the region further analyzed. An iterative global **gray - level** thresholding method is **applied based** on the features of a global **gray - level histogram** . Features of **the regions in** a binary image constructed at each iteration are identified and subjected **to** a modified **analysis** to exclude regions external to the lung field. The initial lung region contour that results from this global process is used to facilitate a novel adaptive local **gray level** thresholding method.

Individual **regions - of** -interest (ROIs) are placed along the initial contour. The dimensions of the several ROIs are...

...upon the patient anatomy enclosed therein. A unique procedure is implemented to determine the single **gray - level** threshold to be **applied to** the pixels within the individual ROIs. A composite binary image results, and a final contour...

...for the automated segmentation of the lung regions in lateral chest radiographs (10) based on **gray - level** threshold analysis. Approximate outer bounds on the **extent of** the lung fields in the image are identified to restrict the region further analyzed (16). An iterative global **gray - level** thresholding method (20) is applied based on **the features** of a global **gray - level histogram** . Features of the regions in a **binary image constructed** at each iteration are identified and subjected to a modified **analysis to** exclude regions external to the lung field. Individual regions-of-interest (ROIs) are placed along the initial contour. The single **gray - level** threshold to be applied to the pixels **within the** individual ROIs is determined (1009). A final contour is constructed to enclose "on" regions (26...

...chaque iteration les caracteristiques des regions dans une image binaire construite, puis on les soumet **a** une **analyse** modifiee de facon a exclure les regions externes au champ du poumon. On place le...

Claims:

...posterior margins in said second image data to produce third image data,performing iterative global **gray - level** thresholding on said third image data to identify **a first** initial lung **segmentation** contour; **and** smoothing said first initial lung segmentation contour to produce a second initial lung segmentation contour.

~~Patent Literature Full-Text
File 348:EUROPEAN PATENTS 1978-2007/ 200724
(c) 2007 European Patent Office
File 349:PCT FULLTEXT 1979-2007/UB=20070614UT=20070607
(c) 2007 WIPO/Thomson

Set	Items	Description
S1	33186	(SEGMENT? OR PARTITION? OR SEPARAT? OR CLASSIFICATION OR CLASSIFY?)(3N)(IMAGE? ? OR PICTURE? ? OR PHOTO? ? OR PHOTOGRAPH? ?)
S2	14170	HISTOGRAM
S3	29	FUZZY()ENTROP? OR (MINIMI?ING OR MEASUR?)(3N)FUZZINESS
S4	357	(MINIMUM OR LOWEST OR LEAST)(3N)ENTROP?
S5	180748	THRESHOLD
S6	920	FPI OR (FIXED()POINT OR FIXEDPOINT)()ITERATION
S7	1402	ITERATION(2N)(TECHNIQUE? OR METHOD? OR ANALY?)
S8	20239	(GRAY OR GREY)()(LEVEL? OR SCALE?) OR GRAYSCALE?
S9	382	AU=(SHIN, Y? OR SHIN Y?)
S10	4	S9 AND S1
S11	1	S10 AND (S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8)
S12	171	S1(S)S2(S)S5
S13	2	S12(S)(S3 OR S4)
S14	1	S13(S)(S6 OR S7)
S15	0	S14 NOT S11
S16	7412	ENTROPY
S17	7435	(S16 OR S3 OR S4)
S18	2309	(S6 OR S7)
S19	12	S17(S)S18
S20	1	S19(S)S8
S21	0	S20 NOT S11
S22	2	S19(S)(S1 OR S2 OR S5 OR S8)
S23	1	S22 NOT S11

11/3,K/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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01802233
Method and apparatus for finding optimal threshold **for** image segmentation
Verfahren und Gerat zum Ermitteln einer optimalen Schwelle zur Bildsegmentierung
Procede et dispositif d'etablissement d'un seuil optimal pour la segmentation **d'** image
PATENT ASSIGNEE:
PANTECH CO., LTD., (4148193), Shinsong Center Bldg, 25-12, Yeouido-dong, Youngdeungpo-gu, Seoul 150-711, (KR), (Applicant designated States: all)
INVENTOR:
Shin, Yong-Shik , 187-58 Dorim 2-dongYeongdeungpo-gu, Seoul 150-832, (KR)
LEGAL REPRESENTATIVE:
Mounteney, Simon James (74912), Marks & Clerk 90 Long Acre, London WC2E 9RA, (GB)
PATENT (CC, No, Kind, Date): EP 1471456 A2 041027 (Basic)
EP 1471456 A3 060517
APPLICATION (CC, No, Date): EP 2004252083 040407;

PRIORITY (CC, No, Date): KR 203025048 030421
DESIGNATED STATES: AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HU; IE; IT; LI; LU; MC; NL; PL; PT; RO; SE; SI; SK; TR
EXTENDED DESIGNATED STATES: AL; HR; LT; LV; MK
INTERNATIONAL PATENT CLASS (V7): G06K-009/38; G06T-005/00
INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):
IPC + Level Value Position Status Version Action Source Office:
G06K-0009/38 A I F B 20060101 20040817 H EP
G06T-0005/00 A I L B 20060101 20040817 H EP
ABSTRACT WORD COUNT: 71
NOTE:
Figure number on first page: 2

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200444	688
SPEC A	(English)	200444	1667
Total word count - document A			2355
Total word count - document B			0
Total word count - documents A + B			2355

Method and apparatus for finding optimal threshold **for** image segmentation
Procede et dispositif d'etablissement d'un seuil optimal pour la segmentation **d'** image
INVENTOR:
Shin, Yong-Shik ...

...ABSTRACT A3
A method and apparatus for finding the optimal **threshold** for **image segmentation** in **image** recognition is disclosed. The method includes the steps of: a) gaining **histogram** distribution of an image; b) computing entropy values corresponding to **gray levels** in the **histogram** ; and c) gaining a **minimum entropy** value corresponding to the **gray level** as the **threshold** value by using a **fixed point iteration FPI** based on the computed entropy values.

...SPECIFICATION of the Invention
The present invention relates to a method and apparatus for finding a **threshold** for **image segmentation** ; and, more particularly, to a method and apparatus for finding the optimal **threshold** for **image segmentation** in **image** recognition.

Description of Related Arts
Generally, a process of finding the optimal **threshold** for the **image segmentation** is fundamental and important process in the image recognition. The process of recognition is necessary to distinguish an object from a background of an image.
The optimal **threshold** can be found easily based on a bimodal type **histogram** distribution graph and in above case, it is located at a lowest point of **histogram** distribution curve. There are many methods introduced for finding the optimal **threshold** .
A first method is stochastic method to find the optimal **threshold** . That is, a **histogram** distribution of an image is assumed as the bimodal type and a **gray level** having the minimum sum of variance is select as

the optimal **threshold** . A second method finds the optimal **threshold** based on the Shannon entropy. A **gray level** having the **minimum entropy** is selected as the optimal **threshold** . There is also another method using fuzziness during computing entropy of image. This method selects a **gray level** having minimum fuzziness as the optimal **threshold** .

Fig. 1 is a flowchart explaining a conventional method for finding the optimal **threshold** . Referring to Fig. 1, at step S101, a **histogram** distribution of an image is computed. Entropies of all **gray levels** distributed in the **histogram** are computed at step S102. All computed entropies are compared one another and a **gray level** having the **lowest entropy** is selected at step 103. However, a process time of the conventional method is increased...

...an object of the present invention to provide a method for effectively finding an optimal **threshold** for **image segmentation** of an **image** having multi thresholds by analyzing entropy characteristic of image based on a **fixed point iteration** and **fuzzy entropy** .

In accordance with an aspect of the present invention, there is provided a method for finding a **threshold** value in **image segmentation** , the method including the steps of: a) gaining **histogram** distribution of an image; b) computing entropy values corresponding to **gray levels** in the **histogram** ; and c) gaining a **minimum entropy** value corresponding to the **gray level** as the **threshold** value by using a **fixed point iteration FPI** based on the computed entropy values.

Brief Description of the Drawing(s)

The above and...

...in which:

Fig. 1 is a flowchart explaining a conventional method for finding the optimal **threshold** ;

Fig. 2 is a flowchart for explaining a method for finding the optimal **threshold** for **image segmentation** in accordance with a preferred embodiment of the present invention;

Fig. 3 is a graph...

...accordance with a preferred embodiment of the present invention;

Fig. 4 is a graph showing **gray level** distribution curve for obtaining a **gray level** of **minimum entropy** in accordance with a preferred embodiment of the present invention;

Fig. 5 is a flowchart for explaining the step S203 in Fig. 2 for gaining a **gray level** corresponding to the **minimum entropy** by using **FPI** in accordance with a preferred embodiment of the present invention; and

Fig. 6 is a...

...forth hereinafter.

Fig. 2 is a flowchart for explaining a method for finding the optimal **threshold** for **image segmentation** in accordance with a preferred embodiment of the present invention.

Referring to Fig. 2, a **histogram** distribution of an image is obtained at step 201. Entropies of **gray levels** are computed at step S202. After computing entropy value at step S202, a **gray level** of **minimum entropy** is gained by using the **fixed point iteration** (**FPI**) based on the computed entropy value at step S203.

In the step S202, the entropy of the **gray level** is computed by

measuring **fuzzy entropy** of corresponding **gray level** . Hereinafter, the computation of **fuzzy entropy** is explained in detail.

If there is an M x N size of image I having L **gray levels** , a **gray level** of pixel (x,y) is defined as I(x,y) and (mu)I))(Ii,j))) represents fuzziness of **gray scale** of pixel (x,y). Therefore, the image I can be expressed as following equation. , wherein...

...j))) ≤ 1;i = 0,1,..., M-1; j = 0,1,..., N-1

If a **gray level** g has a frequency of generation h(g) in entire image I then an average **gray level** (mu)0)) of a background can be expressed as following equation 2 and an average **gray level** (mu)I)) of an object can be expressed as following equation 3.

The average **gray levels** (mu)I)) and (mu)o)) can be considered as target values of the **threshold** value T. That is, the fuzziness can be expressed as a difference between **gray level** of a pixel (x,y) and a **gray level** of a region including the corresponding **gray level** . Therefore, the difference of **gray levels** is smaller, as larger as the fuzziness is. **Gray levels** of all pixels in an image for a **threshold** T must have certain fuzziness either to an object or background. The fuzziness of a pixel can be expressed as following equation.

In a meantime, when a **gray level** of a certain pixel is included in a specific region, the fuzziness must to be...

...as a fuzziness of fuzzy set and there are various entropy-equations disclosed for computing **fuzzy entropy** . If the entropy equation of one independent variable is expanded to 2 dimensional image region...

...decreased in a region of (0.5, 1). In a meantime, if fuzziness of all **gray level** included in the image are about 0.5 then entropy E(I) has 1 as the maximum value.

After obtaining entropy values at step S202, a **gray level** of **minimum entropy** is obtained by using a **fixed** point **iteration** (**FPI**) **method** at step S203.

Fig. 4 is a graph showing **gray level** distribution curve for obtaining a **gray level** of **minimum entropy** in accordance with a preferred embodiment of the present invention.

Referring to Fig. 4, obtaining a **gray level** of **minimum entropy** is explained hereinafter.

Fig. 5 is a flowchart for explaining the step S203 in Fig. 2 for gaining a **gray level** corresponding to the **minimum entropy** by using **FPI** in accordance with a preferred embodiment of the present invention.

At step 501, possible optimal **threshold** values Pi)) for obtaining a **gray level** of **minimum entropy** are obtained based on the graph of Fig. 4.

After obtaining the Pi)), **gray levels** are sequentially obtained from left to right Pi)).

At step 503, an optimal **threshold** of **gray level** having **minimum entropy** is obtained by comparing entropy values of **gray levels** of Pi)).

Fig. 6 is a flowchart for explaining step 501 of Fig. 5 in...

...Gmin)), Gmax)), Pi and gcal)) are set as follows. gmin)) is set as possible minimum **gray level** by selecting a lowest value of a **gray level** distribution curve on Fig. 4, and gmax)) is set as possible maximum **gray level** by selecting a highest value of a **gray level** distribution curve on Fig. 4. And Gmax)) is set as equal to gmax)) and

Gmin...

...steps 602 and 608 are reputedly performed. For helping to understand steps for obtaining optimal **threshold** of Fig. 6, pseudo code is shown in below table.

As mentioned above, the present invention can quickly find the optimal **threshold** value by analyzing entropy characteristic of **image** based on a **segmentation** completion condition and a **fixed point iteration** .

While the present invention has been described with respect to certain preferred embodiments, it will...

...CLAIMS A2

1. A method for finding a **threshold** value in **image segmentation** , the method comprising the steps of:
   a) gaining **histogram** distribution of an image;
   b) computing entropy values corresponding to **gray levels** in the **histogram** ; and
   c) gaining a **minimum entropy** value corresponding to the **gray level** as the **threshold** value by using a **fixed point iteration FPI** based on the computed entropy values.
2. A method as recited in claim 1, wherein...

...c-1) obtaining a plurality of possible optimal thresholds;
   c-2) obtaining entropy values of **gray levels** corresponding to the obtained possible optimal thresholds; and
   c-3) obtaining the **threshold** value by comparing **entropy** values and selecting **minimum entropy** value.
3. A method as recited in claim 2, wherein each of the possible optimal thresholds is obtained by obtaining a value of possible maximum **gray level** having maximum entropy value, a value of possible minimum **gray level** having **minimum entropy** value and obtaining possible optimal **threshold** by adding two values of the possible maximum **gray level** and the possible minimum **gray level** and dividing the sum of addition by half.
4. A method as recited in claim...

...possible optimal thresholds are obtained by changing one of the value of the possible maximum **gray level** and the value of the possible minimum **gray level** according to comparison of entropy values of the possible maximum **gray level** , the possible minimum **gray level** and obtained optimal **threshold** and by newly obtaining a possible optimal **threshold** based on the changed values of the possible maximum **gray level** and the value of the possible minimum **gray level** .
5. A method as recited in claim 2. wherein the step c-1) includes the steps of:
   c-i) obtaining an initial possible optimal **threshold** , an initial possible maximum **gray level** having maximum entropy value and an initial possible minimum **gray level** having **minimum entropy** value by setting Gmin)) to have the initial possible minimum **gray level** , setting Gmax)) to have the initial possible maximum **gray level** , setting gmin)) and gmax)) to have identical values Gmin)) and Gmax)), respectively for not influencing change of value of Gmin)) and Gmax)), setting Pi)) to have the initial possible optima **threshold** by computing equation Pi)) =((gmin)) + gmax)))/2) and setting gcal)) to have the identical value...

...value of gfix)) to have the value of Gmin));
c-vi) obtaining new possible optimal **threshold** pi)) based on changed value of gmin)) and gmax)) by an equation as: Pi)) = (gfix...

...s;
c-ix) if there are not identical two Pi))s, determining next possible optimal **threshold** by setting gtemp)) to have the value of pi+1)) and setting gcal)) to have...

...c-viii); and
c-x) if there are identical any two Pi))s, selects the **threshold** value by comparing entropy values of corresponding Pi))s and selecting Pi having **minimum entropy** value as the **threshold** value.

6. Apparatus for finding a **threshold** value in **image segmentation** , the said apparatus comprising:
(a) means for gaining a **histogram** distribution of an image;
(b) means for computing entropy values corresponding to **grey levels** in a **histogram** ; and
(c) means for gaining a **minimum entropy** value corresponding to a **grey level** as a **threshold** value; whereby the said **minimum entropy** value is gained by using a fixed point interaction based on computed entropy values.

23/3,K/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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00672665
Speech coding apparatus and method using classification rules
Sprachkodiergerat und Verfahren unter Verwendung von Klassifikationsregeln
Appareil et procede de codage de la parole utilisant des regles de classification
PATENT ASSIGNEE:
International Business Machines Corporation, (200120), Old Orchard Road, Armonk, N.Y. 10504, (US), (Proprietor designated states: all)
INVENTOR:
Epstein, Mark Edward, 14 Old Village Lane, Katonah, New York 10536, (US)
Gopalakrishnan, Ponani S., 3073 Radcliffe Drive, Yorktown Heights, New York 10598, (US)
Nahamoo, David, 12 Elmwood Road, White Plain, New York 10605, (US)
Picheny, Michael Alan, 118 Ralph Avenue, White Plains New York 10606, (US)
Sedivy, Jan, 1014 The Colony, Hartsdale, New York 10530, (US)
LEGAL REPRESENTATIVE:
Teufel, Fritz, Dipl.-Phys. et al (11855), IBM Deutschland Informationssysteme GmbH, Patentwesen und Urheberrecht, 70548 Stuttgart , (DE)
PATENT (CC, No, Kind, Date): EP 645755 A1 950329 (Basic)
EP 645755 B1 000329
APPLICATION (CC, No, Date): EP 94114138 940908;
PRIORITY (CC, No, Date): US 127392 930927
DESIGNATED STATES: DE; FR; GB
INTERNATIONAL PATENT CLASS (V7): G10L-019/00; G10L-019/02; G10L-101/10
ABSTRACT WORD COUNT: 200
NOTE:
Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200013	1836
CLAIMS B	(German)	200013	1418
CLAIMS B	(French)	200013	2234
SPEC B	(English)	200013	6756
Total word count - document A			0
Total word count - document B			12244
Total word count - documents A + B			12244

...SPECIFICATION subset is not further split. Also, if the maximum gain (the maximum difference between the **entropy** of the prototype vector signals at the subset minus the average **entropy** of the prototype vector signals at the sub-subsets) obtained for any split is less than a selected **threshold** , the subset is not split. Moreover, if the number of subsets reaches a selected limit...

...maximum benefit is obtained with a fixed number of subsets, the subset with the highest **entropy** is split in each **iteration** .
In the **method** described thus far, the candidate questions were limited to those of the form "Is the...

~~Non-Patent Literature Abstracts

```
File   2:INSPEC 1898-2007/Jun W2
         (c) 2007 Institution of Electrical Engineers
File   6:NTIS 1964-2007/Jun W3
         (c) 2007 NTIS, Intl Cpyrght All Rights Res
File   8:Ei Compendex(R) 1884-2007/Jun W2
         (c) 2007 Elsevier Eng.  Info. Inc.
File  34:SciSearch(R) Cited Ref Sci 1990-2007/Jun W3
         (c) 2007 The Thomson Corp
File  35:Dissertation Abs Online 1861-2007/May
         (c) 2007 ProQuest Info&Learning
File  56:Computer and Information Systems Abstracts 1966-2007/Jun
         (c) 2007 CSA.
File  57:Electronics & Communications Abstracts 1966-2007/Jun
         (c) 2007 CSA.
File  65:Inside Conferences 1993-2007/Jun 18
         (c) 2007 BLDSC all rts. reserv.
File  95:TEME-Technology & Management 1989-2007/Jun W2
         (c) 2007 FIZ TECHNIK
File  99:Wilson Appl. Sci & Tech Abs 1983-2007/May
         (c) 2007 The HW Wilson Co.
File 144:Pascal 1973-2007/Jun W2
         (c) 2007 INIST/CNRS
File 239:Mathsci 1940-2007/Jul
         (c) 2007 American Mathematical Society
File 256:TecInfoSource 82-2007/Nov
         (c) 2007 Info.Sources Inc
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 2006 The Thomson Corp
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
         (c) 2002 The Gale Group
File 603:Newspaper Abstracts 1984-1988
         (c)2001 ProQuest Info&Learning
File 483:Newspaper Abs Daily 1986-2007/Jun 17
         (c) 2007 ProQuest Info&Learning
File 248:PIRA 1975-2007/May W3
         (c) 2007 Pira International
Set     Items   Description
S1     156518   (SEGMENT? OR PARTITION? OR SEPARAT? OR CLASSIFICATION OR C-
             LASSIFY?)(3N)(IMAGE? ? OR PICTURE? ? OR PHOTO? ? OR PHOTOGRAP-
             H? ?)
S2      35620   HISTOGRAM
S3       1613   FUZZY()ENTROP? OR (MINIMI?ING OR MEASUR?)(3N)FUZZINESS
S4       6301   (MINIMUM OR LOWEST OR LEAST)(3N)ENTROP?
S5     604021   THRESHOLD
S6       3421   FPI OR (FIXED()POINT OR FIXEDPOINT)()ITERATION
S7      22128   ITERATION(2N)(TECHNIQUE? OR METHOD? OR ANALY?)
S8      50335   (GRAY OR GREY)()(LEVEL? OR SCALE?) OR GRAYSCALE?
S9       7014   AU=(SHIN, Y? OR SHIN Y?)
S10        31   S9 AND S1
S11         1   S10 AND (S3 OR S4 OR S6 OR S7)
S12       416   S1 AND (S3 OR S4)
S13         2   S12 AND (S6 OR S7)
S14         1   S13 NOT S11
S15    232002   ENTROPY   (January 1969)
S16       137   S15 AND (S6 OR S7)
S17         2   S16 AND S1
```

S18 0 S17 NOT (S11 OR S14)
S19 6 S16 AND (S2 OR S8)
S20 4 S19 AND S5
S21 2 S20 NOT (S11 OR S14)
S22 1 RD (unique items)

11/3,K/1 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

09443060 E.I. No: EIP03287540378
Title: A fast numerical method for finding the optimal threshold for image segmentation
Author: Rhee, Frank Chung-Hoon; **Shin, Yong-Shik**
Corporate Source: Comp. Vis./Fuzzy Systems Laboratory Department of Electronic Engineering Hanyang University, Ansan, South Korea
Conference Title: The IEEE International conference on Fuzzy Systems
Conference Location: St. Louis, MO, United States Conference Date: 20030525-20030528
E.I. Conference No.: 61132
Source: IEEE International Conference on Fuzzy Systems v 2 2003. p 984-989 (IEEE cat n 03CH37442)
Publication Year: 2003
CODEN: PIFSFZ
Language: English

Title: A fast numerical method for finding the optimal threshold for image segmentation
Author: Rhee, Frank Chung-Hoon; **Shin, Yong-Shik**
Abstract: In this paper, we propose a fast numerical algorithm for finding the optimal threshold for **segmenting** gray scale **images** . In the proposed method, several **fuzzy entropy** measures are introduced and the objective is to locate the gray level that possesses the **minimum entropy** . Instead of having to calculate the entropy for every gray level and determining the gray level where the **entropy** is **minimum** , the **fixed** point **iteration** (**FPI**) **method** is used to significantly speed up the process. In doing so, the optimal threshold may...

...of evaluations. To show the validity of our proposed algorithm, we test 7 types of **fuzzy entropy** measures on several images. The experimental results show that the proposed algorithm is much faster...
Descriptors: ***Image segmentation** ; Algorithms; Fuzzy sets; Entropy; Numerical methods; Iterative methods
Identifiers: **Fixed point iteration** (**FPI**)

14/3,K/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC

08853719 INSPEC Abstract Number: B2004-03-6135-087, C2004-03-5260B-175
Title: A fast numerical method for finding the optimal threshold for image segmentation
Author(s): Frank Chung-Hoon Rhee; Yong-Shik Shin
Author Affiliation: Dept. of Electron. Eng., Hanyang Univ., Ansan, South Korea
Conference Title: Proceedings of the 12th IEEE International Conference

on Fuzzy Systems (Cat. No.03CH37442) Part vol.2 p.984-9 vol.2
Editor(s): Nasraoui, O.; Frigui, H.; Keller, J.M.
Publisher: IEEE, Piscataway, NJ, USA
Publication Date: 2003 Country of Publication: USA 2 vol.xxii+1488 pp.
ISBN: 0 7803 7810 5 Material Identity Number: XX-2003-02153
U.S. Copyright Clearance Center Code: 0-7803-7810-5/03/$17.00
Conference Title: 12th International Fuzzy Systems Conference
Conference Sponsor: IEEE; IEEE Neurla Networks Soc
Conference Date: 25-28 May 2003 Conference Location: St Louis, MO, USA
Language: English
Subfile: B C

Title: A fast numerical method for finding the optimal threshold for image segmentation
Abstract: In this paper, we propose a fast numerical algorithm for finding the optimal threshold for **segmenting** gray scale **images** . In the proposed method, several **fuzzy entropy** measures are introduced and the objective is to locate the gray level that possesses the **minimum entropy** . Instead of having to calculate the entropy for every gray level and determining the gray level where the **entropy** is **minimum** , the **fixed** point **iteration** (**FPI**) **method** is used to significantly speed up the process. In doing so, the optimal threshold may...

... of evaluations. To show the validity of our proposed algorithm, we test 7 types of **fuzzy entropy** measures on several images. The experimental results show that the proposed algorithm is much faster...
...Descriptors: **image segmentation** ; ...

... **minimum entropy** methods
...Identifiers: **image segmentation** ; ...

... **minimum entropy** ; ...

... **fuzzy entropy** ; ...

... **fixed** point **iteration method** ; ...

... **FPI** ;

22/3,K/1 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

10940730 E.I. No: EIP06139790552
Title: An improved two-dimensional entropy method for star trail tracing in deep sky
Author: Yao, Zhi-Jun; Wang, Yan-Jie; Han, Qiu-Lei
Corporate Source: Image Processing Laboratory Changchun Institute of Optics, Fine Mechanics and Physics Chinese Academy of Sciences, Changchun 130033, China
Conference Title: ICO20: Optical Information Processing
Conference Location: Changchun, China Conference Date: 20050821-20050826
E.I. Conference No.: 66929
Source: Proceedings of SPIE - The International Society for Optical Engineering ICO20: Optical Information Processing v 6027 II 2006.

Publication Year: 2006
CODEN: PSISDG ISSN: 0277-786X
DOI: 10.1117/12.668344
Article Number: 60273S
Language: English

...Abstract: based on the deep sky stars characteristic, such as low contrast, fuzziness and the centralized **histogram** . We also combine our algorithm with the space trail trace model to forecast the star...

~~Non-Patent Literature Full-Text
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(c) 2007 The Gale Group
File 15:ABI/Inform(R) 1971-2007/Jun 18
(c) 2007 ProQuest Info&Learning
File 16:Gale Group PROMT(R) 1990-2007/Jun 15
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File 20:Dialog Global Reporter 1997-2007/Jun 19
(c) 2007 Dialog
File 47:Gale Group Magazine DB(TM) 1959-2007/Jun 06
(c) 2007 The Gale group
File 75:TGG Management Contents(R) 86-2007/Jun W2
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(c) 2007 The Gale Group
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(c) 2007 CMP Media, LLC

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         (c) 2006 IDG Communications
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         (c) 1999 Business Wire
File 813:PR Newswire 1987-1999/Apr 30
         (c) 1999 PR Newswire Association Inc
File 369:New Scientist 1994-2007/Jan W1
         (c) 2007 Reed Business Information Ltd.
File 370:Science 1996-1999/Jul W3
         (c) 1999 AAAS
File 587:Jane`s Defense&Aerospace 2007/May W4
         (c) 2007 Jane`s Information Group
Set     Items   Description
S1      35554   (SEGMENT? OR PARTITION? OR SEPARAT? OR CLASSIFICATION OR C-
             LASSIFY?)(3N)(IMAGE? ? OR PICTURE? ? OR PHOTO? ? OR PHOTOGRAP-
             H? ?)
S2      10802   HISTOGRAM
S3         59   FUZZY()ENTROP? OR (MINIMI?ING OR MEASUR?)(3N)FUZZINESS
S4        361   (MINIMUM OR LOWEST OR LEAST)(3N)ENTROP?
S5     428481   THRESHOLD
S6       8961   FPI OR (FIXED()POINT OR FIXEDPOINT)()ITERATION
S7        921   ITERATION(2N)(TECHNIQUE? OR METHOD? OR ANALY?)
S8      46102   (GRAY OR GREY)()(LEVEL? OR SCALE?) OR GRAYSCALE?
S9        322   AU=(SHIN, Y? OR SHIN Y?)
S10         0   S9 AND S1
S11         0   S10 AND (S3 OR S4 OR S6 OR S7)
S12       108   S1 AND S2 AND S5
S13         0   S12 AND (S3 OR S4)
S14        11   S1 AND (S3 OR S4)
S15         0   S14 AND S6
S16         0   S14 AND S7
S17         0   (S3 OR S4) AND (S6 OR S7)
S18     18124   ENTROPY
S19         9   S18 AND (S6 OR S7)
S20         8   RD  (unique items)
S21  10876722   IMAGE? ? OR PICTURE? ? OR PHOTO? ? OR PHOTOGRAPH? ?
S22         2   S20 AND S21

22/3,K/1     (Item 1 from file: 88)
DIALOG(R)File  88:Gale Group Business A.R.T.S.
(c) 2007 The Gale Group. All rts. reserv.

07932841     SUPPLIER NUMBER: 158397181
Reactive acrylic liquid rubber with terminal and pendant carboxyl groups as
  a modifier for epoxy resin.
Ratna, D.; Banthia, A.K.
Polymer Engineering and Science, 47, 1, 26(8)
Jan, 2007
ISSN: 0032-3888      LANGUAGE: English      RECORD TYPE: Fulltext; Abstract
WORD COUNT:   4718    LINE COUNT:  00396

...     weight. The functionality is expressed as equiv/mol.
      Solubility parameters were determined by Hansen's iteration  method
 from the three-dimensional solubility parameters of the solvents in which
the polymer is miscible...
```

...conductive (silver) paint and was sputter coated with gold prior to the fractographic examination. SEM **photo** micrographs were obtained under conventional secondary electron imaging conditions, with an accelerating voltage of 20...

...very low, then (DELTA)(G.sub.m) will be highly negative and the change in **entropy** factor due to the curing reaction will result in free energy change of mixing ((DELTA...

...epoxy and the liquid rubber modified epoxy networks are shown in Fig. 8. From the **photograph** (Fig. 8a) it can be seen a smooth glassy fractured surface with cracks in different...

...to the massive plastic deformation caused by the dissolved rubber as evident from the SEM **photograph** (Fig. 8d).

CONCLUSION

Investigation of toughening effect of the liquid acrylate rubbers with the terminal...

22/3,K/2 (Item 1 from file: 484)
DIALOG(R)File 484:Periodical Abs Plustext

07535419 SUPPLIER NUMBER: 1282522211 (USE FORMAT 7 OR 9 FOR FULLTEXT)

3-Dimensional Structures of G Protein-Coupled Receptors and Binding Sites of Agonists and Antagonists1-4

Goddard, William A III; Abrol, Ravinder

Journal of Nutrition (IJNU), v137 n6S, p1528S, 1529S, 1530S, 1531S, 1532S, 1533S, 1534S, 1535S, 1536S, 1537S, 1538S, p.11
Jun 2007
ISSN: 0022-3166 JOURNAL CODE: IJNU
DOCUMENT TYPE: Feature
LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 8396

TEXT:

... the overall structure, whereas Figure 2A shows the details of the predicted structure for epinephrine (**FPI**) bound to human β32 AR. We predicted that: 1) the amine group of **FPI** makes a 2.9-A salt bridge with asparticacid (Asp)-113 (TM3); 2) the 2...

...the calculated binding energies are for minimized structures. That is, we ignore dynamical effects, including **entropy** . We plan to use the full solvent dynamics at 300 K to extract **entropy** and enthalpy information, but long time scales may be required to obtain significant results.

Predictions calculated binding energies are at 0 K and have no explicit **entropy** term included in the calculation (11).

After predicting the structure of the BX471/CCR1 complex...

...blue. The residues with good hydrophobic interaction are specified in black. The top of the **picture** corresponds to the EC region (J. Heo, S-K Han, N. Vaidehi, J. Wendel, P...